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ABSTRACT

A case study testing the hypothesis that poor learning performance may be the result of a poor match between assigned material and student ability involved the use of the Interactive Model (Stetson, 1981). A 10-year-old fifth-grader with reading problems was studied in terms of intelligence, language skills, and instructional materials used in reading instruction. A program was developed for two areas: material modification and client learning strategies involving oral language, reading, and writing. Post-testing showed improvements in most areas and additionally in the student's self-concept. This suggests that the model provided the flexibility to assess both the student and the curriculum material, resulting in a two-pronged approach that not only boosted the student's skills but also adapted the curriculum material. (CB)

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Using an Integrated Model Incorporating Material Modification and Direct Teaching to Remediate an At-Risk Student

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Introduction

Selecting materials for individualized instruction is, for many educators, a 'hit or miss' proposition. Wilson (1982) found that while much time may be devoted to assessing the individual student, selecting curriculum content, and choosing specific teaching methods, comparatively little time is spent on the selection or alteration of the instructional materials" (p.409). Ward (1968) stated that a teacher must "be the competent professional who selects and uses instructional materials in order to increase the learning of children" (p.22). Hoffman (1984) found many students failed tasks because the difficulty of the tasks and the required performance level exceeded their present ability. Almost four decades earlier Strauss and Lehtinen (1947, p.24) discussed this failure syndrome, that Goldstein (1939, pp. 36-7) had previously labeled "catastrophic reaction." Bristow (1985) asserted "poor readers, more often than good readers are placed in materials too difficult for them" (p.319).

The problem is, how does a teacher evaluate a material's appropriateness for an individual student? Ventura (1980) reviewed the literature on selection and evaluation of materials and suggested a range of acceptable material evaluation procedures. One of the most important components of his proposed evaluation format is the teacher's identification of the material level specifically, readability, vocabulary control, and

interest. Stetson (1983, p.291-292) concurred that "the wider the gap between the demands of a textbook and the capabilities of the student to read that book, the greater the need for direct intervention by the teacher."

The Interactive Model (Stetson, 1981) depicts the scope of influences a teacher encounters when teaching a child to read. Stetson views reading as the comprehension of print that is accomplished throught the interaction among three levels: primary, secondary, and tertiary. The primary influences are: language facility, immediate recognition, and mediated recognition. The language facility is the controlling influence in the print-to-meaning process. The secondary influences are: auditory processing, visual processing, language, and memory. The tertiary influences are: motivation, self-concept, sociological factors, physiological factors, teacher personality, quality of education, and difficulty of materials.

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Figure 1
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This model was selected because it incorporated other reading models as contributing primary influences. The

Integrated Model also integrated other peripheral factors not included in other models such as student and teacher variables. The tertiary factor which was of particular interest to the researchers was the relationship between student learning and the material level of difficulty.

Case Study

In an attempt to test the hypothesis that poor learning performance may be the result of a poor match between assigned material and student ability, the authors selected a single subject for study. Joe, a 10 year old, enrolled in the 5th grade was referred by the teacher to the university for a psychological and communication evaluation. The evaluation consisted of a psycholol gical, reading, and an oral language battery. The primary consideration was the possiblity of a learning disability in the area of oral language and reading. The parents were concerned because Joe was not 'getting the information' when reading his textbooks and his writing skills were not at grade level.

Client Evaluation. In the case history, the parents reported a normal pregnancy/delivery, an unremarkable history for ear problems or for gross/fine motor skills. Joe was described as a hard worker who worked in a slow deliberate style. In a psychological evaluation his results from the Wechsler Intelligence Scale for Children-Revised showed average ability in verbal and performance scores. In the language evaluation, Joe's

pragmatic skills were within normal range. His semantic skills in oral definition and explaining terms were depressed, but his comprehension of single word vocabulary as measured on the Peabody Picture Vocabulary Test was within normal range. His syntactic skills reflected consistent use of less complex structures which were not appropriate for a ten year old. The reading evaluation used the Woodcock Reading Mastery Test, Form A with word identification at the 4th grade level, word attack at the 3.7 grade equivalent, word comprehension at the 4.4 grade equivalent, and passage comprehension at the 4.0 grade equivalent. In oral reading, he frequently mispronounced words, 20% in a 200 word passage, used phrase revision, and was not fluent. He used phonic skills to spell so his spelling mistakes were phonically based.

The diagnostic information was then plotted on Stetson's Interactive Model (1983, p. 144) which is shown in Figure 1. In the Primary Influence level, problems with oral language and immediate recognition in word attack were noted. There were no Secondary Influence factors noted. In the Tertiary Level, text readability was a problem as well as an emerging poor self-concept as a student. In comprehension there was difficulty with both literal and inferential aspects of reading as well as oral reading and silent reading. While the results of the tests indicated that Joe's performance would not meet the criteria for learning disability, he was an at risk student with

specific weaknesses in reading.

Materials Analysis. Joe's assigned texts for all subjects were analyzed using the Fry Readability Graph (Fry, 1968) since Johns (1981) found it consistent with the Spache, Dale, and Shaw readability formulas in verifying reading levels of selected passages. Rush (1985) warned that "readability formulas may yield unrealistic estimates from small numbers of samples and in many cases were reliable only when the samples include the entire text" (p.276). With this possibility in mind, the investigators considered Fitzgerald's suggestion (1980, 1981) that sampling of readability should be extended to continuous 100 word passages throughout the book. All strategies and material modifications for Joe were subsequently based on Fitzgerald's continuous readability assessment. The results of the analysis (Figure 2) led the investigators to suspect that a portion of Joe's learning problem was based on the level of the material which he was expected to master.

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Figure 2

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Joe's performance on the Peabody Picture Vocabulary Test and the Woodcock was compared to the results of the readability analysis of his assigned texts. Because his

scores in word identification, word attack, word comprehension, and passage comprehension fell consistently below the fifth grade level and his informally-observed oral reading demonstrated a similar level of ability, it was anticipated that Joe might have considerable difficulty with certain passages in every assigned text with the possible exception of math.

A program was developed for two areas: material modification and client learning strategies. Materials were modified using various approaches to adapt the text material (Table 1). The suggested strategies were selected for their applicability to both individualized and group learning in textbook oriented classes. These suggested modifications were appropriate for all grade levels of the curriculum. Client learning strategies were based on improving oral language, reading and writing.

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Table 1
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Client Learning Strategies

The remedial program was divided into three components: oral language, reading, and writing. In oral language the goals were to improve Joe's semantic and syntactic abilities. In writing, the goal was to improve his writing skill in content and style. In reading, the

goals were to improve his sight word attack skills, his oral reading fluency, and most importantly his comprehension using the S4R method (Stetson, 1983).

The S4R method, Survey, Read, Recite, Record, and Review, was designed to improve comprehension and retention of material contained in a textbook. This method was chosen over the SQ3R (Robinson, 1961) and other reading-study methods because of its flexibility for teacher implementation in classrooms where students are expected to learn primarily from printed material (Stetson, 1983 p. 292). It was used to increase Joe's learning efficiency as well as his ability to retain information.

Oral Language

In semantics, the use of multiple meaning words, and academic vocabulary in science, social studies, and mathematics were used. Semantic mapping, the technique ofteaching word meanings through student contributed terms associated with the key word/s, was used to teach academic vocabulary (Stahl & Vancil, 1986). In syntax, Joe was given exercises to teach compounding of sentences (Wiig & Semel, 1984) for outcome, time, and condition. He was also taught how to tell stories moving from concrete to abstract topics.

Reading

Oral reading fluency was addressed through repeated readings of Fry readability-graded passages of 400 words in length. The methodology used was passage scanning, first

reading, reading by clinician, reading with both clinician and Joe, final reading. Fluency was judged by the increase in reading time from the first to last reading and by the decrease in errors.

In comprehension, he was taught the S4R method on graded passages of the SRA series so that comprehension could be measured through percent correct in the questions following each story. Once this method was learned, Joe was given passages to read in his science text. In all subject area textbooks, he was taught to semantically map the vocabulary he did not know when he scanned the passage.

Writing. The writing approach was designed to improve sentence structure, sentence elaboration, paragraph development, and informational content. The approach used was developmental and based on the Phelps Sentence Guide program (Phelps-Terasaki & Phelps, 1980). The program began with simple sentence generation and moved through nine sequences to paragraph composition. The nine sequences are:

Stage 1: Introduction-Simple Sentences
Stage 2: Expansion of the Subject
Stage 3: Expansion of the Predicate
Stage 4: Editing Practice-Basic Sentence Units
Stage 5: Verb Tenses
Stage 6: Editing Practice-Verb Tenses
Stage 7: Paragraph Development
Stage 8: Editing Practice-Paragraph Development
Stage 9: Advanced Applications

Therapy

Joe was seen twice a week for one hour sessions. The sessions were divided into three sections: oral language for

20 minutes, reading for 30 minutes, and writing for 10 minutes. Home activities based on applications of the S4R method and writing assignments were devised. Joe's parents were trained in the S4R method and they participated actively in the home component of the program.

Results

The results of the pre-post testing showed improvements (Table 2) in all areas except in writing cohesive paragraphs. Improvement was due to targeting those specific areas in oral language and reading. The assessed performance in oral language as well as reading demonstrated the need for remediation in both areas. Additionally, Joe's self-concept as a student began to improve as his time spent doing school assigned homework decreased and his scores on science and social studies tests improved.

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Table 2
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Discussion

The findings of this single subject case study indicated that a teacher should take into consideration both the readability of the textbooks and the student's ability level

in developing a remediation program. In textbook oriented classrooms, the readability of the material should be analyzed using the Fitzgerald modification of the Fry Readability Graph or other similar measures to determine the grade level of the texts. Materials with higher readability than the assessed individual or class average should be modified using appropriate strategies for the individual student and classroom.

In an individualized remediation program, the Interactive Model may provide a theoretical framework for client assessment and remediation. Improvement of the reading difficulty may be approached from a holistic perspective with age appropriate oral language serving as the guiding principle. Receptive and expressive language should be analyzed for pragmatic, semantic, syntactic, and phonologic appropriateness. The importance of oral language cannot be overemphasized, for as Zintz (1981) commented, "a child's reading ability can be no better than his oral language."

The interactive model may also be used in dealing with reading remediation. The areas of academic vocabulary, reading fluency, mastery of a comprehension and retention system, and other pertinent skills should be addressed. The student's strengths and weaknesses need to be analyzed through the evaluation and the remediation program should be planned with those abilities in mind.

Stetson's Interactive Model provided the flexibility to

assess both the student and the curriculum material. This resulted in a two-pronged approach that not only boosted Joe's skills but also adapted the curriculum material. Since the model was comprehensive, it was difficult to separate one component from another in determining the critical variables. The major consideration for all specialists serving reading delayed children was to approach client remediation from a comprehensive perspective that included material adaptation and student performance.

Figure 1

Stetson's Interactive Instructional Model of Reading

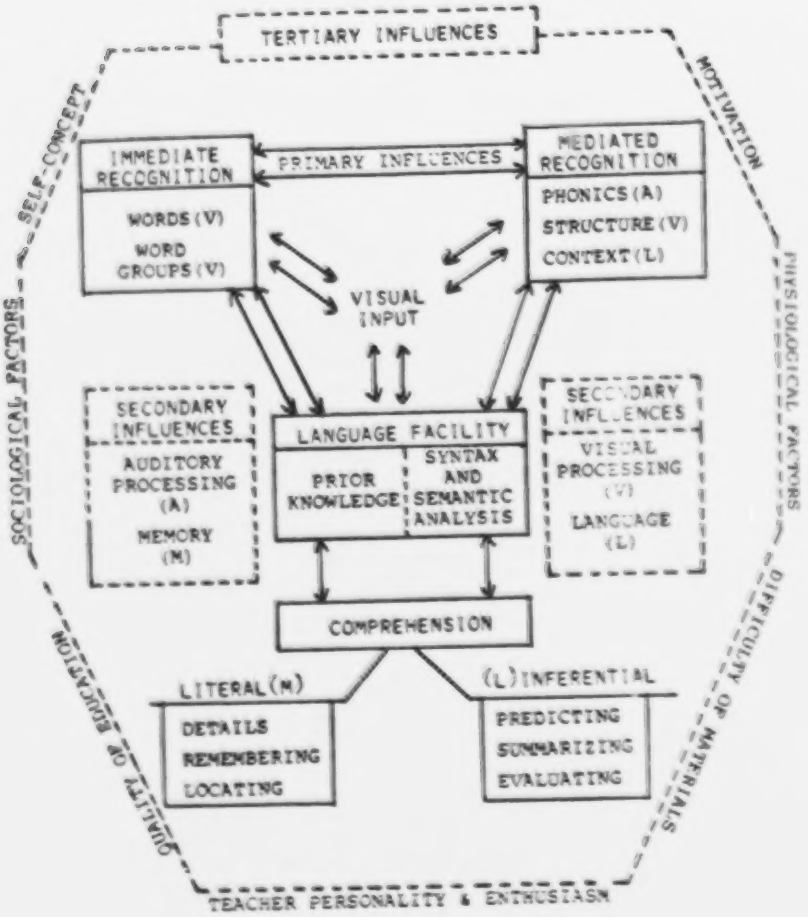

Figure 2

	Syllables	Sentence	Grade Level
Follett Spelling 5			
1st selection	137	10.5	5
2nd selection	139	6.5	7
3rd selection	128	9.0	3
Good Health for You			
1st selection	139	7.0	7
2nd selection	148	8.5	7
3rd selection	141	12.5	4
Holt Math			
1st selection	130	10.0	3-4
2nd selection	129	8.5	4-5
3rd selection	131	8.7	5
New Voyages in English			
1st selection	139	6.5	7
2nd selection	147	5.7	8
3rd selection	127	10.0	3
Our History, 1983			
1st selection	141	9.5	6
2nd selection	143	8.1	7
3rd selection	167	7.5	11
Freedom's Ground			
1st selection	139	5.3	8
2nd selection	156	7.5	9
3rd selection	171	6.5	college
The New Exploring Science			
1st selection	135	7.5	6
2nd selection	124	6.3	6
3rd selection	125	8.3	4

Table 1

Adapting Text Material

Rewording- Teacher selects words that are easier for the student to read and shortens sentences to focus on content.

Underlining- Teacher highlights the important words and ideas in texts where readability is not significantly higher than the student's reading level.

Tape Recording- Teacher uses to supplement student learning not to supplant the assigned reading.

Pairing- Teacher pairs good reader with a reader who has difficulty to complete an assignment.

No-Essay-Type Tests- Teacher uses modified true-false, matching, or multiple choice questions.

Leading Questions- Teacher asks student one or more questions before beginning a reading assignment to direct and organize his thinking.

Study Questions- Teacher provides the student with study questions to help him organize the material being covered.

Small, Distinct Sequenced Steps- Teacher introduces material in discrete parts, one concept at a time.

Share Reinforcement Materials- Teachers across content and grade areas share materials that match student ability levels.

Different Formats of Materials- Teachers use multisensory kits, audio-visual components to accompany printed materials.

Teacher-Made Materials- Teacher made items should be self-checking to allow the student to determine response accuracy.

Table 2
Score Comparisons

ORAL LANGUAGE		
oral definition	2/15	15/15
explaining terms	4/15	12/15
complex sentence use in a language sample	5	45
READING		
Test	**Pre**	**Post**
Woodcock Reading Mastery		
word identification	4.0	5.6
word attack	3.6	4.7
word comprehension	4.4	5.2
passage comprehension	4.0	5.7
Oral Reading (200 word passage)		
mispronounced words	20%	5%
time	240 sec	180sec.

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